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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,752	04/09/2004	Shuho Motomura	Q81015	8798
23373	7590	09/21/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			BAREFORD, KATHERINE A	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/820,752	MOTOMURA, SHUHO	
	Examiner	Art Unit	
	Katherine A. Bareford	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-13 and 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Claims 1-8 and 14 are canceled

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment of August 24, 2006 has been received and entered.

With the amendment, claims 1-8 and 14 are canceled, and claims 9-13 and 15-21 are pending for examination, including new claims 18-21.

Claim Objections

2. The objection to claims 9, 14 and 17 because of informalities is withdrawn as applicant, in the amendment of August 24, 2006, made the suggested changes to claims 9 and 17 and canceled claim 14.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 depends from canceled claim 1, and thus the requirements of the claim are unclear. For the purposes of examination, the Examiner has treated the claim as depending from independent claim 9.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9-13 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomura (US 2003/0064159) in view of Motoda et al (US 6010570), Mendiola et al (US 6254682) and Japan 09-241843 (hereinafter '843).

Motomura teaches a coating method of forming a coating film on a surface of a substrate. Figure 1 and paragraph [0002]. Coating liquid is raised by a capillary phenomenon in a nozzle and brought into contact with the surface. Paragraphs [0087] – [0097]. The coating liquid is coated on the surface by the relative movement of the nozzle and substrate. Paragraph [0097]. The substrate is attached to a chucking means such that the surface to be coated is facing downwards and the chucking means is attached to the backside of the substrate. Paragraphs [0056] and [0087] (absorption board 19). The coating film is formed on the surface to be coated by moving at least one of the nozzle and the chucking means in a horizontal direction. Paragraph [0097].

Claim 10: after forming the substrate is released from the chucking means onto a holder. Figure 12 and paragraph [0102].

Claim 11: the chucking is carried out by vacuum means. Paragraphs [0056] – [0062] and [0087].

Claim 12: during the forming of the coating film on the surface, a distance between the nozzle and the surface is controlled so that the film thickness is uniform. Paragraph [0095].

Claim 13: before the forming the nozzle is lifted so that the coating liquid is brought into contact with the surface, and the nozzle is descended an amount to determine a coating thickness. Paragraph [0096].

Claim 15, 17: the coating film is a photoresist. Paragraph [0080].

Claim 16, 17: the substrate comprises a photo mask blank. Paragraph [0088].

Motomura teaches all the features of these claims except for (1) the attachment of the chucking means to the substrate using the holding means as claimed, (2) the release of the substrate such that the coated surface of the substrate faces downward (claim 10), and (3) the holding means with the predetermined angle for receiving the substrate in an inclined state.

However, Motoda teaches a coating method of forming a coating film on a surface of a substrate. Figures 3-4 and column 4, lines 1-20. Coating liquid is raised through a slit nozzle and brought into contact with the surface. Figures 3-4 and column 4, line 35 through column 5, lines 30. The coating liquid is coated on the surface by the relative movement of the nozzle and substrate. Figures 3-4 and column 6, line 55 through column 7, line 5. The substrate is attached to a chucking means such that the

surface to be coated is facing downwards and the chucking means is attached to the backside of the substrate. Figures 3-4 and column 4, line 5-25 (chuck plate 10). The coating film is formed on the surface to be coated by moving at least one of the nozzle and the chucking means in a horizontal direction. Figures 3-4 and column 6, line 55 through column 7, line 5. The chucking is carried out by vacuum means. Column 4, lines 20-25. During the forming of the coating film on the surface, a distance between the nozzle and the surface is controlled so that the film thickness is uniform. Column 5, lines 1-10. The coating film can be a photoresist. Column 1, lines 5-10. Motoda teaches to perform the coating as part of an apparatus with a loader section, preliminary processing sections and a resist coating/developing section for the coating process with the slit nozzle. Column 9, line 60 through column 10, line 40 (all part of the "first processing section" see resist coating device 107). The loader section includes cassettes housing untreated substrates and transfer pincers that take the untreated substrates out of the cassettes to transfer into the first processing section and pincers that take treated substrates and transfer into cassettes for holding treated substrates. Column 10, lines 10-25. A main arm is also provided to transfer the substrates between adjacent member devices. Column 10, lines 20-35.

Mendiola teaches treating plate like material that is carried in cassettes for treatment. Column 3, lines 35-45. Mendiola teaches that this device allows inversion of plate like materials in bulk, for treatments like meniscus coating techniques that require the substrate to be inverted. Column 3, line 60 through column 4, line 5. For example,

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the plate like material in can be inverted, and then the substrate removed from the cassette and the first surface processed from beneath the plate like material using a meniscus coating applicator or any other bottom surface treatment technique, and then the plate like material is returned to the cassette. Column 7, line 65 through column 8, line 20. Then the cassette inverter apparatus is rotated 180 degrees and the cassette is returned to its original position. Column 7, lines 10-20.

¶ '843 provides that it is known to carry wafer substrates for treatment in grooves of cassette type holders (holding boats). Abstract and figure 1. Furthermore, it is known to provide the grooves in an inclined state so that the wafers are correspondingly inclined for easy placement and removal of wafers. Abstract and figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Motomura to provide the attachment of the substrate using a holding means as claimed as suggested by Motoda and Mendiola in order to provide a desirable and efficient coating method, because Motomura teaches a method of coating using a vacuum chuck to hold plate like materials with the coating face facing downwards so that the substrate can be coated with a capillary coating method, and Motoda teaches that when coating with a substrate held by a vacuum chuck to allow coating of the downward facing surface it is desirable to store the substrates in cassettes and then remove them with a holding device (such as arms, pincers) and transfer them to the coating sections and Mendiola teaches that when coating with a substrate held so

as to allow downward facing of the substrate, it is desirable to have the substrates placed in bulk in a cassette and inverted to the correct downwards facing position before transfer to the coating device. This would provide that the substrate would be provided from a cassette to a holding means in the desired downwards facing direction and the holding means and the chucking means would necessarily be brought towards each other by moving at least one of the holding and chucking means, since the holding means and the coating means are separated, and after chucking occurs, the holding means and chucking means would have to be separated, so that the chucking means can process to the separated coating means. Moreover, it would be suggested to release the substrate such that the coated surface of the substrate faces downward because Mendiola further teaches that all the substrates are placed back in the cassette to invert to the upward position, indicating that this occurs after removal from the chuck. It further would have been obvious to modify Motomura in view of Motoda and Mendiola to provide that the substrate in the cassettes are provided in an inclined fashion as suggested by '843 in order to provide an easy loading and removal of the substrates to and from the cassette as Motomura in view of Motoda and Mendiola provides substrates to the holding means from a cassette and '843 provides that it is desired to provide that the substrates in the cassette are provided in an inclined fashion for easy loading and removal of substrates to and from the cassette. As a result of the substrates in the cassette being in inclined form, the holding means will turn (such as by turning or bending arms or pincers) by a predetermined angle based on the angle of the

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substrate in the cassette to remove the substrate held in an inclined state and then put it in the correct position for chucking.

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over ⁹ Motomura in view of Motoda, Mendiola and '843 as applied to claims 1-13 and 15-17 above, and further in view of the admitted state of the prior art.

Motomura in view of Motoda, Mendiola and '843 teach all the features of these claims except the size of the substrate.

However, the admitted state of the prior art, at pages 1-2 of the specification, teaches that it is known to use capillary coating to coat large sized substrates, described as having at least one side with a length of 300 mm or more.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Motomura in view of Motoda, Mendiola and '843 to use a substrate having at least one side with a length of 300 mm or more as suggested by the admitted state of the prior art so as to provide a desirable coating because Motomura in view of Motoda, Mendiola and '843 teaches a capillary coating process, and the admitted state of the prior art teaches that it is well known to use large size substrates, with an least one side having a length of 300 mm or more when performing capillary coating.

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8. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomura in view of Motoda, Mendiola and '843 as applied to claims ⁹1-13 and 15-17 above, and further in view of Ichinose et al (US 4960485).

Motomura in view of Motoda, Mendiola and '843 teach all the features of these claims except the shock absorber means.

However, Ichinose teaches that when performing treatment of wafers, including moving the wafers, it is well known to provide shock absorber means on the treatment devices. See column 6, lines 40-68 and column 7, line 65 through column 8, line 25.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Motomura in view of Motoda, Mendiola and '843 to use shock absorbing means on the holder and other carrying devices as suggested by Ichinose so as to provide a desirable coating because Motomura in view of Motoda, Mendiola and '843 teaches a capillary coating process with wafer carrying, and Ichinose teaches that it is well known to provide shock absorbing means on wafer carrying devices.

Response to Arguments

9. Applicant's arguments with respect to claims ⁹1-13 and 15-21 have been considered but are moot in view of the new ground(s) of rejection.

The Examiner has provided Japan '843 as to the inclined substrate.

As to the providing of the substrate in bulk (through cassettes) as taught by Mendiola, Motoda provides the suggestion, when capillary coating, of storing the substrates in cassettes. As to the inferiority of the vacuum chuck in Mendiola, it is described as inferior for inverting the substrate, which Mendiola solves by inverting in the cassette. However, Mendiola specifically teaches that the substrate must be removed from the cassette for treatment. Column 8, lines 1-10.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kath A Bareford
KATHERINE BAREFORD
PRIMARY EXAMINER